DOCUMENT RESUME

ED 307 788 EC 220 297

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TITLE The Development of Educational Support Systems for the Academically Talented: The Talent Search Concept and Discussant Reactions.
PUB DATE Mar 88
NOTE 29p.; In: Dreyden, Julia I. Ed.; And Others. Developing Talent in Mathematics, Science and Technology: A Conference on Academic Talent (Durham, North Carolina, March 28-30, 1988); see EC 220 285.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Descriptive (141) -- Viewpoints (120)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academically Gifted; Elementary Secondary Education; Higher Education; *Mathematics Education; *Program Development; *Science Education; *Talent Development; *Talent Identification

ABSTRACT

The Johns Hopkins University Center for the Advancement of Academically Talented Youth and Duke University's Talent Identification Program are used as examples in this examination of the development of educational support systems in the identification and education of mathematically, scientifically, and verbally able youth. The educational support systems consist of four key initiatives: (1) a program policy statement; (2) an annual talent search and recognition process for seventh-grade students in public, independent, and parochial schools; (3) supplemental academic programs for precollegiate youth; and (4) a research agenda. Academic program support involves: coordination with regular school programs to provide credit or advanced placement, by-mail programs, an advising and advocacy service, international initiatives, young students' classes, minority outreach and access, consultation services, student/teacher recognition and training, and a parent outreach network. A reaction to the paper by Stephanie Marshall discusses fundamental philosophical premises of talent search programs and describes the Illinois Mathematics and Science Academy, a 3-year residential school for gifted students. In addition, John Conger offers observations on talent identification and education

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THE DEVELOPMENT OF EDUCATIONAL SUPPORT SYSTEMS FOR THE ACADEMICALLY TALENTED: THE TALENT SEARCH CONCEPT

William G. Durden

Within the last five years, one national report after another has examined the state of American education and, all too often, the results have been less than positive. Low teacher salaries, lack of coherent curricula, inadequate student performance, high student and teacher dropout rates and irregular local, state, and federal funding have made the American response to educating its children and youth a very uncertain affair. Among the remedies often proposed is a closer working relationship between schools and colleges. This proposal is advanced in a larger context, a context which defines, in part, an important American educational possibility. Simply stated, American education since its founding has utilized resources beyond the school--museums, factories, universities, churches, family--to forward a child's development. These agencies external to the school have in varying degrees and formats supported and rendered critical service to schools and their clientele, either complementing the school's efforts or providing an alternative to students and their parents when the school could not adequately respond to a demonstrated need (for a more comprehensive treatment of this issue see "Early Instruction by the College: Johns Hopkins Center for Talented Youth" by William G. Durden in *College-School Collaboration: Appraising the Major Approaches*, ed. William T. Daly, Jossey Bass, Inc., Publishers, San Francisco and London, 1985).

The Talent Search concept represents a vivid example of the supportive role which universities can play in advancing education for American precollegiate youth. In delineating this supportive function of the Talent Search, I shall use for reference The Johns Hopkins University Center for the Advancement of Academically Talented Youth (CTY), the oldest Talent Search initiative in the country as well as Duke University's Talent Identification Program (TIP), the second oldest Talent Search initiative. I believe these programs represent singularly and collectively the most complete testament to the supportive role of Talent Search initiatives.

Before proceeding it is perhaps helpful to state those defining characteristics which defines a Talent Search. Essential elements are a university base; a two-stage identification process (in-grade and out-of-level) that is regional in nature and that concentrates upon academic abilities; weekend or summer academic programs to include a residential component; and, a research agenda. The Talent Search's supplemental activities involve all four of these defining characteristics. At present four universities qualify for consideration--The Johns Hopkins University, Duke University, Northwestern University and the University of Denver. Each of these universities conducts independent Talent Search operations and therefore is in no way formally associated through a National Talent Search Consortium. They do, however, respect each other's area of regional Talent Search activity.

CTY-A General Description

The Johns Hopkins University Center for the Advancement of Academically Talented Youth has gained national and international recognition for identifying and educating mathematically, scientifically and verbally able youth. In 1971 the

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University pioneered a successful method of finding and helping talented adolescents with the founding of the Study of Mathematically Precocious Youth (SMPY). Today, the Johns Hopkins Talent Search model and the academic programs developed by CTY have been replicated in other schools, colleges and universities both in the United States and abroad. The rationale underlying CTY's effort is based on three beliefs:

1. That talented youths should have an opportunity to fulfill their intellectual aspirations regardless of the age at which their abilities first appear

2. That those talented youths should have an opportunity to advance educationally according to their individual rate of learning and level of performance

3. That talented youths should have access to appropriate curricula that have been organized to respect a natural sequence of learning

This rationale is reflected at CTY in a comprehensive educational support system for academically highly able youth, consisting of four key initiatives:

1. A program policy statement

2. An annual Talent Search and recognition process for seventh-grade students in public, independent and parochial schools

3. Academic programs for precollegiate youth on weekends during the fall and spring and for extended lengths of time during the summer

4. A research agenda.

The comprehensive program also provides a series of supplemental services, to include by-mail academic programs, an Advising and Advocacy Service, international initiatives, young student classes (ages seven to eleven), minority outreach and access programs, consultation services and public policy, student/teacher recognition and training programs, a Parent Outreach Network and credit/placement coordination with a student's regular school program.

Educational Support Systems for the Academically Talented

Program Policy

CTY, established formally in 1979 by Dr. Steven Muller, President of The Johns Hopkins University, is an academic center with offices in Baltimore, Maryland and Los Angeles, CA. Its activities, CTY believes, are rooted firmly in defining characteristics of American education. This definition, from which much of recent education has strayed, is distinguished by a delicate balance of flexibility and autonomy for the individual learner with an imperative for equal opportunity of education among students with a wide diversity of need and ability. Exercise of these defining traits distinguishes institutional learning in the United States from that of all other countries where education is also a matter of national concern.

The following program policy defines CTY's work in general:

- CTY's primary function is to focus upon the institution of schooling as the principal form of advancing a youth's education and to ensure that that schooling is responsive to a maturing talent. CTY, therefore, does not offer a prescription for success in life; rather, it advocates responsive and appropriate schooling.

- CTY does not use the word "gifted" when referring to the children and youth with whom it deals. The word "gifted" should be reserved for that individual who has truly made a significant and mature contribution to the advancement of knowledge or practice.

The following policy defines CTY's work in identification:

- CTY focuses upon the identification of children and youth demonstrating high capacity in verbal and/or mathematical reasoning abilities. CTY, of course, recognizes a wide array of other talents a person could possess, but, it has chosen to limit its pursuit. CTY applauds those institutions which focus responsibly on other talent areas and sees them as necessary for providing a complete array of services for youth.

- Verbal and mathematical reasoning abilities form the focus of CTY activity for the following reasons:

    - They represent core abilities that are highly applicable to other areas of learning and pursuit.

    - They represent essential talents which inform those school subjects and related activities necessary for success in learning.

    - They can be efficiently and economically developed within the institutional setting of most schools regardless of their location or cultural resources.

    - They are more readily identifiable and less elusive than other types of talent.

- In identifying students with high capacity for verbal and/or mathematical reasoning abilities, CTY recommends a two-stage process: general screening and in-depth differentiation. The initial stage determines *the type* of talent exhibited by outstanding ability at grade level; the latter stage determines *the degree* of talent within an individual as a result of "out-of-level" testing. Out-of-level testing as opposed to grade level testing permits a high enough ceiling to discriminate diverse degrees of ability among extremely bright students.

The following policy defines CTY's work in academic programs:

- Students proceed educationally according to their demonstrated pace and level of learning

- The provision of appropriate subject matter (i.e. "enrichment") cannot occur without the provision of appropriate pace (i.e. "acceleration")

- CTY focuses its educational agenda on the liberal arts (i.e., English, history, foreign languages, mathematics, the sciences and the arts) as the most engaging and, in the long run, most valuable curricular embodiment of verbal and/or mathematical reasoning abilities.

- In a particular subject students are often examined before instruction begins to determine what they already know in order that the instruction which follows may emphasize what is clearly not known. Pre- and post-testing are critical elements of CTY policy and practice and can eliminate unnecessary boredom for students resulting from unwarranted repetition of skills and content.

- CTY balances rigorous and challenging educational course work with a social experience that encourages a realistic assessment of learning, enthusiasm and self-confidence.

Talent Search

The CTY Talent Search is conducted in Alaska, Arizona, California, Connecticut, Delaware, Hawaii, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, Washington, West Virginia and the District of Columbia. Duke University conducts a Talent Search for the same age group in sixteen states: Alabama, Arkansas, Florida, Georgia, Iowa, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Nebraska, North Carolina, Oklahoma, South Carolina, Tennessee, and Texas. CTY also sponsors an International Talent Search, which provides an opportunity for American and English-speaking students abroad to become part of the CTY network of academically talented students.

The Talent Search focuses on students who score in the upper three percentiles in mathematical and/or verbal reasoning as measured by standardized aptitude and achievement tests and who then sit for the College Board Scholastic Aptitude Test (SAT). CTY has just completed the largest search in its history. Approximately 36,000 seventh-graders registered for the 1988 Talent Search. Eligible students who cannot afford the fee to enter the Talent Search may be granted a waiver. In 1987 CTY granted about $8,000 in fee waivers. Duke University encourages qualified students to sit for either the Scholastic Aptitude Test (SAT) or the ACT Assessment (ACT). [In 1987, 41,309 students participated in the TIP Talent Search.] In order to ensure that all qualified youngsters have a chance to learn more about their potential, TIP also distributes fee grants to economically disadvantaged youth.

Each year the CTY Talent Search culminates in a series of awards ceremonies held to honor the top-scorers in each of the nineteen states where the search is conducted. The awards ceremonies are part of the CTY effort to recognize and foster academic excellence. Speakers at these ceremonies have included state governors, U. S. Senators, and national leaders in the sciences and humanities who

have devoted their time to encourage talented youth people to develop their full potentials. Duke holds similar state ceremonies as well as a grand regional recognition ceremony on the Durham Campus of the University.

Many selective colleges and universities have donated one-course scholarships to be awarded to CTY top-scorers in their states. In addition, students who qualify for the National Talent Search by scoring 700 SAT-M or 630 SAT-V before the age of thirteen are awarded scholarships (totaling over $8,000 in 1986, for example) to be applied to CTY Summer Programs. These scholarships and other special honors are presented at the state awards ceremonies.

The CTY Talent Search also offers Career Symposia designed to help Talent Search participants develop career goals, College Counseling Days to assist these students in making informed decisions about the selection of colleges and Special Interest Days that permit students to focus on an area of study such as science, writing or mathematics. This year, for example, Career Symposia were held at the American Museum of Natural History in New York City, at the Boston Museum of Science, at the California Museum of Science and Industry in Los Angeles, and at The Johns Hopkins University in cooperation with the Maryland Academy of Sciences.

Academic Programs

CTY has emerged during the last decade as a national and international focal point for the education of highly talented youth in mathematics, the sciences and the humanities. The outstanding feature of CTY's programs, shared by TIP's programs, is the opportunity students are given to study challenging subject matter and to advance through an intensified curriculum. The classes are demanding and especially designed to match the intellectual requirements, academic needs, and developing potential of talented adolescents. For many, it is the first opportunity to match achievement with ability.

While participation in CTY programs can result in early college admission for some highly qualified students, this is not the chief goal of the program. CTY students typically enter college full-time at the usual age, but often with advanced standing in specific subjects.

CTY's courses are offered during the summer only at four residential sites and three commuter sites throughout the continental United States. An international site is proposed in Geneva, Switzerland in 1989. CTY's courses are based upon fourteen years of study, evaluation, and experience. CTY summer course work spans the humanities, mathematics, computer science, the social sciences, and the sciences, including distinctive science courses offered in cooperation with the Maryland Academy of Sciences. Classes are small and geared to students' abilities allowing individual attention and evaluation. A high degree of motivation and self-discipline is necessary to complete the daily class and homework assignments.

The atmosphere at the CTY Summer Programs is similar to that of a small college where academic pursuits are the primary focus. A safe and pleasant environment is created, geared to the special needs of a population of students

whose ages range from twelve to sixteen years. Although academic pursuits are the principal considerations in CTY programs, students and parents have frequently told CTY staff that the social and extra-curricular activities which we provide for our participants are of great importance to them. The daily schedule is designed to permit a healthy mix of class work, study, athletics, activities, and social relaxation.

In 1987, 3,000 students attended CTY summer programs and came from 43 states and twelve foreign countries.

A supplemental goal of CTY course work is to permit students at an important period in their lives to develop lasting enthusiasm for learning as opposed to an environment sometimes hostile or indifferent to their talents. Selected comments from former CTY students vividly outline the contrast between CTY learning and that in their regular schools.

> In regular school, my progress was hindered by unchallenging curriculum and undemanding teachers . . . Since my regular school teachers never modified the curriculum, I was never motivated to learn. I just sat there, didn't try, and rolled in straight A's.
>
> [At CTY in contrast to my regular school] I didn't have to pass myself off as a less intelligent and a less unique person for the sake of fitting in. I wasn't discriminated against because of my age, grade, or what I wore.
>
> [In my school math class] even though I was placed in the top math class, the pace was too slow.
>
> [In CTY mathematics] no one ever told you what to do with every single step while never explaining why, so all that you ended up doing was strictly mechanical with no thought involved. Likewise there was no one standing over you saying, "My way is the only way to do this, if you don't do it this way, you're wrong."
>
> [Most of my regular school work] is regurgitated bit of information copied quietly off the blackboard . . . learning is a chore.
>
> In my high school [because I like math], I'm a "brain", a freak . . . In school so few people take any real interest in what is being taught.
>
> Everyone in our [CTY] class felt free to ask questions, even if they were off the subject, without fear of derision. Unfortunately, in some schools, this is not the case; students are repressed and bored as a result of conforming to the mind-set of their classmates.
>
> In school, things have always come easily, with no real effort at all. A parroting back of facts is considered insight, a grammatically correct paragraph is seen as literary genius. I have always done what is expected of me, only at school the expectations are ridiculously low.

> When I first came to CTY, it was the first time that I had to work for something. Suddenly, the "challenges" were challenging and the "demands" were demanding. It was hard, and a few times I failed but, I learned. For the first time in my life, I learned, not only about writing, but about working.

Students who exhaust CTY offerings can take advanced courses in their local high schools, in universities or can enroll for a Summer Residential Honors Program for sisteen and seventeen year olds conducted by The Johns Hopkins School of Continuing Studies (on the Homewood Campus of the University) and offering college credit.

Duke University offers on the Durham Campus both a TIP Residential Program for twelve to sixteen year olds (college credit or non-college credit) and a Precollege Program.

The Summer Residential Program, much like the CTY Program, offers intensive, fast-paced courses in the humanities, social sciences, natural sciences, mathematics, and computer science. Students enroll in a single course during a three-week term and generally complete the equivalent of a year of high school or a semester of college-level work. The Summer Residential Program is open to students who have completed grades seven, eight, nine, or ten. The Precollege Program is open to students entering their senior year and to those students entering their junior year who have received an "A" or "B" in a TIP college-credit course. Precollege students enroll in two Duke Summer School courses with regular undergraduates and earn college credit.

In contrast to CTY, which no longer offers academic year commuter programs, TIP offers a Commuter Program as an enrichment experience for students who live near enough to Duke to commute. The purpose of the program is to present a high-level introduction to a variety of topics and issues. It is not intended to provide high school or college credit.

Enrollment in the TIP Summer Residential Program has also been substantial. In 1987, 814 students were in attendance.

Credit/Placement - Coordination with the Student's Regular School Program

CTY cannot award credit or placement for CTY courses, even if the content is equivalent to or more advanced than that available to the student at the local school. CTY makes concerted efforts, however, to facilitate its students obtaining credit and/or placement.

CTY strongly recommends that before students register for courses, they take the CTY summer catalogue to their local school principal and/or guidance counselor and discuss the effect their plans may have on their future academic endeavors. CTY also helps in negotiations with schools for appropriate course placement and credit for academic work completed with CTY. Because students come from hundreds of local schools and school systems, CTY staff members cannot directly speak with officials from each school. CTY has found, however, that those students who conclude arrangements with their schools before attending CTY

classes and who bring descriptions of course work and all CTY records of accomplishment to the schools, often receive appropriate placement and/or credit. Upon completion of a CTY course of study, each student receives a course description and a detailed, descriptive evaluation of his/her performance. This evaluation is written personally by the student's instructor and focuses on academic performance and overall progress and effort throughout the session. The evaluation is addressed to the student and is formal in tone. Topics for discussion are content-centered and are specific enough that educators outside CTY are able to infer the high level at which the course was presented and be able to measure a student's achievements by their own standards. This evaluation is accompanied by nationally-normed, standardized pre- and post-testing results, when appropriate and a recommendation for the next logical course of study following completion of the CTY experience. To assist teachers in the local schools to anticipate the general recommendation of subsequent course taking following specific CTY subjects, CTY has published a document entitled "CTY Guidelines for Credit/Placement - Science/Mathematics and Humanities." In addition, CTY conducts an annual survey of selected students following the summer program to assess the status of credit and/or placement issues in the schools.

Duke University possesses a similar disposition towards coordination with a student's regular school program as does CTY. Duke University as Johns Hopkins does not have a laboratory school nor a Department of Education. The Talent Identification Program is not prepared nor does it desire to compete with the public, independent or parochial school. One goal of the Duke effort is to be seen as a resource for schools as they develop challenging educational plans for their most brilliant youths.

After students have completed TIP summer programs, a detailed test report and academic evaluation are forwarded to both the student and school. Recommendations for placement and suggestions for other educational activities are provided which would benefit the student. A new staff position, Associate Director for Student Services, has been created. This full-time professional serves as a liaison among the program, students, the school and the parents of the participants.

By-Mail Programs

The writer/apprentice correspondence relationship is one of the great traditions in classical education, dating back to Roman antiquity. It is also one that in recent years has been largely abandoned in favor of large-scale education efforts, when often too little energy is reserved for serious, lengthy communications between teachers and students.

The CTY Expository Writing Tutorial-By-Mail (EWT) reclaims this literary tradition. Instituted in 1984 with a grant from the National Endowment for the Humanities, EWT has set in place a forum for communication between the apprentice and master writer, where the tutor responds with extensive personal comments about student work.

Since the program's inception, nearly 1,000 students have participated in this valuable opportunity, practicing writing and building upon previous lessons. The

curriculum is straightforward--every 10 to 14 days, students receive a letter and a new writing assignment. The letter comments on the student's previous work, offers constructive praise, and makes supportive suggestions for improvement. New assignments stem from the tutor's diagnosis of a student's needs. For example, one typical assignment sequence guides the student from simple description of surroundings, to self-description from another point of view, to using another persona to narrate an event, and finally to an analysis of an event or situation.

Like other CTY courses, EWT is a multi-leveled program. Every phase allows students to exercise their proficiencies while learning new skills. EWT sequences are available for three levels of sophistication: students who have never taken a CTY Writing Skills class; students who have completed one or more CTY Writing Skills classes; and students ready to prepare for the Advanced Placement Examination in English Language and Composition.

Most EWT tutors are professional writers trained in teaching writing. Many hold advanced degrees from the most outstanding writing programs in the country. Many have taught CTY Summer Residential classes and have also published short stories, magazine articles and poetry in regional and national publications.

Two hundred and fifty five students are enrolled in the 1988 CTY/EWT Program.

During the academic year TIP runs an extensive "By-Mail" program. The "By-Mail" courses provide a challenging learning experience for academically able students with well-developed independent learning skills. Students are provided with college-level texts, supplemental materials, and in some cases taped lectures. An assigned mentor guides students, grades their work, and serves as a long-distance resource. Some of these courses prepare students to take College Board Advanced Placement examinations and thereby enable them to earn college credit for their course work. "By-Mail" courses are open to students in grades 8-12 and are particularly helpful to rural students. Two hundred and thirty-six students took part in the program in 1987.

The Advising and Advocacy Service

CTY's emergence as a national and international pioneer in the education of talented youth places it in a position to assess comprehensive needs in the field and to provide accurate information to parents, students and educators.

Through a grant from The Lynde and Harry Bradley Foundation, the Advising and Advocacy Service was established in January 1988 to provide information on programmatic, personnel and material resources and to provide needed educational services.

The Advising and Advocacy Service functions as a central clearing house for information on programs, organizations, opportunities and resources that are useful to academically talented students, their parents and interested educators. Bibliographies are available to inform parents and educators about the issues and practices in the education of highly able students and to help researchers locate

information on topics of interest. Special bibliographies on such topics as talented girls and talented, learning disabled students are also available.

In collaboration with other experts, CTY staff members have developed written responses to frequently asked questions. (CTY, for example, receives some 5,000 telephone calls per month seeking information). These responses clearly reflect the CTY philosophy that early identification and educational intervention are essential to ensure that highly able youth will reach the highest levels of their intellectual potential. Guidelines to help parents evaluate programs and opportunities that are available for their child's education are among the many documents available. Issues surrounding identification and appropriate educational planning are also discussed.

And finally, quite often local school systems need help to develop programs or modify existing courses to accommodate better their most academically able students. Curricular packages and consulting services are available to aid schools and individuals in their efforts to provide appropriate educational experiences for academically talented youth.

Duke University responds to the need of public awareness in a variety of ways to include *The Educational Opportunity Guide*, published annually and listing more than 350 programs for highly able children and youth.

International Initiatives

CTY serves the education of highly able children and youth internationally in a multifaceted manner:

1. The Director of CTY, under contract to the Office of Overseas Schools, U. S. Department of State, evaluated in 1986 the quality and extent of educational programs for highly talented youth in American-sponsored schools throughout the world. As a result of recommendations issuing from this study, the U. S. Department of State established a National Advisory Committee on Exceptional Children and Youth whose purpose is to counsel American-sponsored overseas schools on educating highly able youth. Dr. William Durden chairs this committee and CTY serves as the professional resource organization. A model school program has already been established in Sao Paulo, Brazil.

2. CTY conducts an annual International Talent Search for seventh-graders or students of seventh-grade age.

3. CTY announces the establishment of its first international summer residential program at the College du Leman, Geneva, Switzerland. Beginning in 1989, this international center will accommodate overseas students as well as stateside students.

4. CTY and the University of Hamburg, the Federal Republic of Germany, are entering their fifth year of a cooperative service/research project. Hamburg under the auspices of this agreement has developed special weekend mathematics and writing courses for highly able German youth and in 1988 will open the first German summer residential program for youth highly capable in mathematics. Faculty will be Germans who have taught for the

last three years at CTY summer sites in the United States through a Hopkins/Hamburg faculty exchange. The CTY/Hamburg project has also resulted in at least twenty research papers and master degree theses in Germany.

5. CTY and the University of Tel Aviv are currently negotiating a summer exchange of students. In the summer of 1988, TIP and the University of Ulm will embark upon an exchange program that will enable five students to study advanced mathematics at a foreign university. Duke will be host to five German students and in turn the Universities of Ulm and Konstanz will welcome five TIP students to participate in their Intensive Mathematics Program for academically talented high school students.

TIP students will also have the opportunity to continue their study of Chinese in Beijing, China. The program will combine intensive language instruction at Beijing Teacher's College with formal and informal opportunities to study the culture and society of this important nation and culminate in a study trip to other cities.

Young Students Classes

CTY has initiated a pilot program for students in the elementary grades: second through seventh grade. Students are identified with an out-of-level test, the School and College Ability Test (SCAT), which measures their mathematical and verbal reasoning. The classes focus on adjusting important aspects of the students' education, particularly the pacing and level of instruction, to meet the students' assessed needs. Young students are encouraged, as soon as they are ready, to begin mastery of the necessary fundamentals of scholarship and to find expression for their excellent reasoning abilities.

During the summer, classes meet three hours per day, five days per week for three weeks, at sites in Baltimore and Columbia, Maryland.

The Academic Year Program offers classes in Baltimore and Columbia, Maryland and Richmond, Virginia. (In the fall of 1988 CTY will begin classes at the new Hopkins Center in Montgomery County, Maryland.) Classes meet for two and a half hours once each week from October to Mid-May.

Course offerings include Self-Paced Individualized Arithmetic/Pre-Algebra/Algebra, Reading in the Classics, Basics of Writing, Latin for Language Development, Mathematical Problem-Solving and Science Exploration (focusing on Biology and Chemistry).

Minority Outreach and Access

CTY with the generous assistance of numerous foundations has initiated an extensive effort to improve academic access and accomplishment among minority youth. This effort manifests itself in various ways:

1. Initial Outreach: Through the funding of outreach representatives in selected urban areas, CTY is working to bring forward those young minority students

who are currently eligible for the CTY Talent Search but for various reasons are not coming forth.

2. Skills Reinforcement Project (SRP): CTY is involved in a three-year project to promote the enrollment of minority and economically disadvantaged youth in programs for high academic achievement. With grants from a variety of private foundations, 42 sixth-grade students in the first year of the project, representing the ethnic diversity of the Pasadena (California) Unified School District (76 percent minority, with 41 percent black and 26 percent Hispanic) have been involved in a nine-month skills reinforcement program. The program is designed to develop the students' verbal and mathematical reasoning skills and to improve their study skills, so that they can meet initial qualifying scores necessary for competition in the CTY Annual Talent Search (97th percentile on an in-grade achievement test in either the mathematics or verbal area) and/or qualify for local gifted and talented programs. Students were selected on the basis of their performance on the California Achievement Test (CAT). They must have scored between the 80th and 96th percentile to have been eligible.

A premise for the program is that with proper assistance minority students can meet the standards set for "advantaged" children. Students in the SRP participated in a three-phase, intensive academic program which involved:

- Twelve Saturdays from February through May, 1986
- A two-week residential program in coordination with CTY Summer Programs
- Eight Saturdays from October-December, 1986. The students took the CAT tests in the fall. The preliminary results are promising: 20 of the 42 students scored at or above the 97th percentile in *either* mathematics or reading. The second year of the project with a new group of students was equally successful. A third replication of the SRP, with yet another group of students is currently underway

CTY is delighted to announce that as of January 1, 1988 The James Irvine Foundation (California) has funded CTY to bring the Skills Reinforcement Project to Los Angeles Unified School District.

3. The Jerome "Brud" Holland Scholarship Program: CTY announces a new scholarship program that will make substantial funding available to qualified students (especially minorities, women in mathematics/science and students from rural areas) who might otherwise be unable to participate in the CTY Talent Search and/or CTY Academic Programs.

Funding available under this program will pay the SAT registration fee for students who have registered with the Talent Search under the CTY provision for partial fee waivers and will provide partial to full tuition grants and assistance with such costs as travel expenses for selected students who qualify for CTY summer residential programs regardless of race, religion, or national origin. The

academic program grants may be single or multiple year. The program is named in honor of the late Dr. Jerome H. (Brud) Holland.

Dr. Jerome H. Holland, a graduate of Cornell University (B.A. with honors, 1939) and the University of Pennsylvania (Ph.D., 1950), was an educator, civil-rights advocate, and former United States ambassador. One of thirteen children of Robert and Viola Bagley Holland, he began working for his father, a gardener and handyman, at the age of eight. Arriving early in life at a strong belief in education and job training as the key to advancement, Dr. Holland later became president of the Hampton Institute and president of Delaware State College. He served on the board of directors for the United Negro College Fund, and in 1965 was elected to the National Football Hall of Fame. In 1970 he was named Ambassador to Sweden, and he served as chairman of the board of governors of the American Red Cross, a member of the board of directors of the National Urban League, and as a director of fourteen corporations including the American Telephone and Telegraph Corporation, the Chrysler Corporation and the General Foods Corporation.

4. Independent School Admission and Scholarship Program: CTY has established in cooperation with several independent secondary schools a distinctive program that permits qualified minority youth involved in CTY programs to be admitted and to receive scholarship assistance. Among the participating schools are the Harvard School (Los Angeles, California) and the Newark Academy (Livingston, New Jersey).

Duke University also devotes considerable resources to the issue of minority participation. Increasing numbers of minority students have gone through the identification process, which remains the typical introduction of students to TIP's other programs. With extensive foundation support, minority representation in the Summer Residential Program has steadily and dramatically increased from 1 student in 1981 to 87 students in 1987. In addition, major scholarship support for women, minorities, and rural youth has come from a variety of foundations.

Consultation Services and Public Policy

CTY provides consulting services to advance the quality of academic services to youth. CTY has worked at the local school, district, county, state, national and international levels to help evaluate the current status of efforts for highly able students and to provide a plan of action based on CTY's philosophy and practice. Current efforts include work with the New York State Science and Technology Foundation; the Wisconsin Institute on Public Policy; the Appalachia School District, Pennsylvania and the Baltimore City Public Schools.

CTY consulting service is informed by several implications emanating from its distinctive program policy. Among these are:

- While CTY concentrates for reasons of organization, economy, and efficiency upon academically able children and youth, it believes strongly that with appropriate adaptation and adjustment its policy and practice are applicable to a much more diverse group of students.

- Schools should not bear sole responsibility for the nurturing--both educational and emotional--of children and youth. The imaginative use of other institutions, to include the family, museums, universities, clubs and churches, contributes decisively to meeting the challenge.

- There is no *one* program that meets the needs of all academically able youth; rather, a variety of responsible strategies are appropriate.

- The artificial lock-step of education (kindergarten through graduate school in discrete units and in predetermined progression) should give way as much as possible to allow students to progress at their own rate in particular areas of study. Students, therefore, could be placed simultaneously at various levels of instruction depending upon the development of talent in a particular subject area--mathematics, science, English, foreign language, history and the arts.

- Talent needs information. Not to introduce and discipline highly able children and youth in the initial levels of cognitive ability (such as defining terminology and symbols; recalling facts, names, examples, rules and categories; recognizing trends, causes and relationships; acquiring principles, procedures, implications and theory), as well as the highest levels (evaluation, synthesis and analysis), is to render them unprepared for sustained intellectual and creative contribution in later life.

- Those qualities such as creativity, problem solving, risk taking and critical thinking, naturally associated with the unfolding of high level verbal and/or mathematical reasoning abilities and found within those core school subjects--such as mathematics, language arts, foreign languages, science, history and t generally best taught, however, in an integrated fashion, embedded in appropriate subjects of the liberal arts curriculum, rather than as a separate course.

- Course work for highly capable students should not be of a "make-more-work" nature. The course work should either assist those students with identified need to proceed more efficiently through a regular course of study or offer relevant and challenging enrichment which will extend knowledge systematically in a target area of the curriculum or in an associated interest.

A more detailed commentary on selected CTY consultation projects follows:

1. *Appalachia Intermediate Unit, Edensburg, Pennsylvania:* With the assistance of CTY staff, the Appalachia Intermediate Unit School District is in its third year of a Mathematics Project. The Project includes grades 2 through 8 but aspires to establish a flexibly-paced mathematics curriculum for kindergarten through senior high. A significant impact on the mathematics' instructional programs and on student achievement since the establishment of the project has been empirically documented. Achievement gains were immediately evident and have continued to increase. Several of the students participating in the Mathematics Project have won mathematical awards and honors on regional, state and national levels.

- The project has attracted national and international inquiries. The most conspicuous include Dr. Harald Wagner of the German Association "Bildung and Begabung," June Cox of the Richardson Foundation and Pat Tierney of the Pittsburgh City Schools.

2. *Cooperation for Success in Mathematics:* CTY plans to join with the Roland Park School, a part of the Baltimore City Public Schools, to initiate a pioneer effort to implement CTY's distinctive approach to the instruction of mathematics in a regular public elementary and middle school setting. Such an effort not only maximizes the vital cooperation of public and private institutions as well as a unile school setting. Such an effort not only maximizes the vital cooperation of public and private institutions as well as a university with a pre-collegiate school, but also applies systematically those methods of instruction that have demonstrated effectiveness with talented youth upon regular students. In addition, CTY welcomes an opportunity to offer the students of Roland Park School the opportunity to have within their own institution a choice in instructional format which may in some cases result in increased commitment to and motivation for education and heightened performance in mathematics. A research design shall be utilized to test the effectiveness of the CTY model as compared to the school's existing traditional instructional format.

3. *CTY Individual Assessment and Evaluation Opportunity:* Highly able students and their parents often do not have sufficient information to participate fully in important educational decisions. Students attending the Carlisle and Lancaster, Pennsylvania CTY summer residential sites are offered the opportunity to learn more about their educational profiles as they prepare for college and career decisions.

   Participants who opt for this service receive:

   - An assessment package to help them and their parents make more informed decisions about career, college and current educational choices;

   - Two group interpretation sessions (one designed for parents and the other for students) to explain the testing results and how this information can be used; and,

   - A complete profile for future decisions and counseling. The assessment package presents a profile of the student's learning style, interests and personality traits in a positive and constructive manner. Students are encouraged to examine how their respective patterns of preferences, traits, and styles influence how they learn. They also analyze their interactions with others, their educational and career choices, and traits that can help them attain their goals.

Duke University has also pursued an active agenda of consultative outreach and service. TIP hosts an annual conference for state-level G/T Coordinators throughout its Talent Search Region; it has established a cooperative program with

Western Kentucky University; it provides regularly consultation to public and private schools; and, it developed Advanced Placement supplementary materials through a grant from the Mary Reynolds Babcock Foundation which are now in at least one school in each of the fifty states. More than 3,000 copies of these materials have been sold at cost of publication.

Student/Teacher Recognition and Training

CTY through substantive funding opportunities has advanced a variety of innovative student and teacher recognition and/or training programs. Some of these efforts are highlighted below.

1. *The Orville and Irene Anderson Excellence Awards for Young Scholars and Recognition Awards for Local Educators:* This is a unique program intended to emphasize academic achievement and motivation among CTY program participants. The Orville and Irene Anderson Awards provide the recipients with scholarships to the college of their choice, and recognize the outstanding support provided to these young people by their educators.

At each CTY summer residential site, some students are nominated by the faculty for their outstanding academic performance and motivation. These nominees are then invited to submit an essay describing what CTY's summer programs meant to them and outlining their future educational plans. Two first-award recipients, two second-award recipients, and two third-award recipients are selected by CTY to receive scholarship support towards their college education. First and second-award recipients and their families are also asked to nominate the educator who most influenced them. These educators are invited to attend a special Recognition Ceremony held in Baltimore, where they are honored by educators from throughout the Johns Hopkins' community as well as through citation from their respective state governors and U. S. Senators as well as the United States Secretary of Education.

2. *SDB Foundation - Teacher Recognition Program:* With funding from the SDB Foundation, CTY intends to advance significantly in the state of California the identification and recognition of elementary school teachers with affirmed commitment to high standards of instruction and respect for the emerging talents of highly capable youth. Such an agenda represents unprecedented action to applaud and advance those dedicated teachers who have so long been laboring in relative obscurity, but whose talents, successful practices and point of view demand an appropriate forum for influencing the well-being of American education. Proposed projects to be conducted under the grant treat two discrete topics:

- A recognition process and award ceremonies (in San Francisco, Los Angeles and San Diego) for outstanding elementary-level teachers/administrators brought to CTY's attention through nominations by students and their families who are selected as state/regional award winners in the CTY Annual Talent Search for seventh-graders.

- A one week summer recognition institute for fifteen (15) selected teachers/administrators who were nominated for citation by student Talent Search award winners for the state of California. Such an

Institute will not only provide CTY with more information about the profile of an outstanding teacher/administrator for talented youth which will in turn assist schools throughout the country in discovering appropriate instructional talent, but also, will give the educators a recognition so infrequently bestowed.

3. *National Endowment for the Humanities Teacher Training Institute:* Forty-eight elementary and secondary teachers and administrators from four areas of the country came together in the summer of 1985 to study writing (CTY has published a distinctive book on teaching writing for highly able youth--*Writing Instruction for Verbally Talented Youth:* The Johns Hopkins Model by Reynolds, Kopelke, Durden, Aspen Systems Corporation, 1984) and etymologies. Educators from Saratoga Springs, New York; Phoenix, Arizona; New Brunswick, New Jersey, and the Greater Los Angeles Unified School District studied for three weeks at the Dickinson College site in Carlisle, Pennsylvania. They studied the relationship between writing and word origins, both of which are a part of the regular CTY curriculum. In 1986 a select group of the participants spent one week developing materials adapting this curriculum for their home schools. The results of this work are published in a text entitled, *Affinities: Varieties of a Writing/Etymologies Curriculum for Precollegiate Youth,* edited by William G. Durden and Elizabeth B. Carter.

4. *Overseas Schools Summer Training Seminar:* CTY will conduct a stateside ten-day residential teacher training seminar for staff of American schools in Mexico, Central America and Colombia in 1989. This seminar is preceded by workshops in Sao Paulo, Brazil; Cali, Colombia; and, Santiago, Chili.

Duke University has also initiated several innovative teacher training efforts. Through a grant provided by the Mary Reynolds Babcock Foundation, a pilot effort involving student/teacher instructional teams was initiated in 1983. The concept involves students enrolling in the Summer Residential Program and their teacher serving as a teaching assistant in the students' class. Both student and teacher study with one of the program's master teachers. All curricular materials are available to the participating teacher. Upon completion of the Summer Program, the student/teacher teams return to the local school where the teachers resume their instructional duties and the students serve as a teaching assistant for one period per day. The initial team came from McAllen, Texas Independent School District.

Parent Outreach Network

As part of the CTY Talent Search's ongoing effort to improve the range and quality of services offered to Talent Search participants and their families, the Parent Outreach Network was officially formed for the 1987 search with funding from The William Bingham Foundation.

This organization consists of parents who volunteer to contact schools, answer questions for their respective state from parents and teachers by phone and to hold informational meetings in local communities. The Parent Outreach Network proves a highly effective means of communicating the CTY message. Parents whose children have participated in the Talent Search and Academic Programs are

particularly credible representatives of our organization. Outreach volunteers are very active on behalf of the Talent Search and effectively support professional CTY staff by helping to arrange Awards Ceremonies, conducting the ceremonies, placing stories in local newspapers, advising concerned parents of options for educating highly capable children based upon personal experience and encouraging local schools to join the Search.

Duke University also has an active Parents Network. In order to open opportunities for academically talented students beyond the Duke campus, TIP has started a Parents' Network which acts as a conduit of information from the program to parents, from parents to parents, and from the parents to the program. In the short history of the Network, parents have presented seminars about the Duke program at state gifted education conferences and have sought to change inappropriate local policy.

Research

Since CTY's inception, it has worked incrementally to reach through Talent Searches, academic programs and supplementary activities as many students and their families as possible. But during that period, through lack of funding and time, CTY did not have the opportunity to conduct a substantive research agenda although much of the data that could underline such a program was collected and internal evaluative documentation was consulted for academic program direction. (Initial research upon the validity of the Talent Search Model was conducted by Dr. Julian C. Stanley, founder and director of the Study of Mathematically Talented Youth, The Johns Hopkins University.)

Within the last year, CTY has turned its attention and resources to forming a substantive research agenda for the next decade and in so doing, to underscore the vital link between research and its future conduct of public policy. A university-wide Research Committee devoted exclusively to CTY was appointed by the Provost and Vice President for Academic Affairs and is chaired by the Vice Provost of The Johns Hopkins University. CTY has also appointed a Director of Academic Program Research as well as a Data and Testing Analyst. With this increased staff as well as with an intensified examination of the research potential of the Talent Search Division, CTY has begun in 1988 a one-year self study to formulate its research agenda, an agenda appropriate to its mission and capabilities. Already a number of discrete research projects are emerging to include a study of CTY's fast-paced science courses, conducted from 1982-88, a follow-up study to determine concretely the influence of the Talent Search and academic programs (mathematics, sciences and the humanities) upon the youth and schools in particular schools, an empirical assessment of an early intervention program for minority students and a testing of the validity of its entrance SAT requirements for its various courses.

Duke University/TIP finds itself in a similar stage of development with regard to research as does CTY. Thus far only modest effort has been expended on conducting sophisticated research with talented adolescents. Necessarily, during the initial years of the program the attention of the TIP Director and staff has been focused in developing and revising the Talent Search materials, initiating high quality and broadly based educational programs and developing the local institution support for the Duke effort. According to Dr. Robert Sawyer, Director of the TIP,

it is now imperative for TIP to focus attention on developing high quality research projects that will serve the Program without distorting it. The research effort should strive to establish a knowledge base from which to continue the development of quality educational programs and services while simultaneously contributing to the general understanding of the talented students.

To this end, a National Advisory Committee was appointed to advise the Director on an appropriate research agenda and a local consultant group composed of Duke faculty and administrators provides assistance in the day-to-day operation of the evaluation effort. As with CTY, TIP research publications are beginning to emerge from the program. TIP's own research efforts along with a cooperative research program with Yale University produced a dozen publications or submitted manuscripts in 1986/87.

TIP is also currently involved in pioneering research with the ACT Assessment Program to break new ground in discovering how well the ACT measures academic skills of talented young students.

Conclusion

By using the examples of CTY (The Johns Hopkins University) and TIP (Duke University), this paper presents extensive and ambitious educational support systems for academically talented children. The sheer variety of the services and the number of students receiving benefits of the services (some 80,000 by both institutions in 1987 alone) argues for the unique place of the concept *Talent Search* in the history of American education. Making maximum use of inherent flexibility possible in schooling within the United States and of the autonomy available to the individual learner, CTY and TIP quintessentially demonstrate the degree to which American education can succeed imaginatively in advancing academic potential imaginatively. Of course, CTY and TIP as well as those other responsible Talent Search programs are not *the* answer to serving high ability among our children. No *one* program serves the needs of all youth. A variety of choices from magnet schools, to high quality teaching in the regular classroom, to specialized residential high schools are needed to match an individual student's ability with an appropriate institutional setting in which education can take place. But in an environment where autonomy and flexibility are highly valued educational capital, CTY and TIP offer far-reaching and comprehensive paradigms for advancing learning.

Discussant Reaction:
The Development of Educational Support Systems for the Academically Talented: The Talent Search Concept

Stephanie Marshall

My task as a discussant is to primarily focus on Dr. Durden's paper. However, I will also use his paper as a framework to talk about residential programs. Dr. Durden has given us a very rich and comprehensive review of the talent search program, its philosophical premises and its programmatic constructs. He's described in great detail the rationale, and what I will call the cognitive scaffolding that supports the talent search concept within the context of the two very critical values that characterize American education: programmatic flexibility and individual autonomy. He has reviewed the talent search concept as an example of an educational support system for the academically talented. As a discussant of Dr. Durden's remarks I want to comment on what I consider to be the fundamental philosophical premises of the talent search program as well as the principle programmatic components. I think this is important because this reflection will cause us to look at the talent search concept as an example of what all educational support systems should be that are designed to develop academic talent.

I also want to comment on some of the other critical dimensions in the talent search program; these include: 1) the identification/development of appropriate student/learner outcomes; 2) the issue of minority recruitment, identification and retention; 3) career exploration programs; 4) the social and emotional needs of gifted youngsters; 5) communication with their school program; 6) advisory advocacy services; 7) affiliations with local school districts; 8) the identification of very young and talented students; and 9) the recruitment, selection, induction, and retention, of faculty or, how to cultivate and keep remarkable faculty, which is one of the issues that we are working with at the Illinois Academy. In order to address these concerns. I'm going to draw from my background in gifted education, my background as the Director of an institution which is still in its infancy--we're only a year and a half old--and also my present role as chair of the State Board of Education's Advisory Council on Gifted Education, which is a statutory appointed committee by the legislature.

Dr. Durden has underscored the strong advocacy role that universities play in advancing education for talented youth as fundamental to the talent search concept. The involvement of universities in gifted education reinforces the concept of vertical integration that Al Trivelpiece spoke about. I support the four defining characteristics of the talent search program; I think they are fundamental and important as we begin to design educational support systems for gifted students. The university base; the comprehensive and two-stage identification process; the residential component which is critical not only for student interaction with mental age peers, but also for that "critical mass" of which Durden spoke; and the strong research base, because of the implications that will have for statewide and federal policy development. However, I want to focus my remarks on the belief system, because the most critical variable in the talent search program is that belief system. The belief system represents the fundamental construct upon which talent is based.

Progression is based on individual need and rate of learning and with content that can be differentiated to meet those individual learning needs. I'm familiar with the talent search program adopted by the state of Illinois, as well as the

Midwest Talent Search at Northwestern University. And as is true for the Center for Talented Youth Programs, these other programs are also based on the premise that school is the primary mechanism through which talent is advanced, and that opportunities presented through schooling must be individualized according to the student's rate and level of learning. This premise is manifested, I think, in the policy variables that define the CTY's work in academic programs. Enrichment and acceleration are both provided, indeed, Durden compared them to love and marriage. Pre and post-testing occur prior to instruction, and the focus of the educational agenda is on the liberal arts.

I want to address these variables now from the perspective of the Illinois Mathematics and Science Academy (IMSA) as a model of another kind of educational support system. I found this comparison particularly useful as I read Durden's paper many times to extrapolate the variables; the belief system, and the programmatic components of the talent search program. I wanted to use these components of the talent search program. I wanted to use these components also as a programmatic overlay by which to discuss other programs, which is to say a program that really works--and we have enough research to indicate that the talent search across the nation is working, not only in identification of talent, but also in providing programs --then how might I assess the program in which I am presently involved, using the same variables. The process would be very useful, not only to me, but perhaps to you, as you look at the talent search as a model, and then begin to develop from the model other kinds of educational programs to support gifted kids.

IMSA is a 3-year residential school for students gifted in math and science, very much modeled after the North Carolina School of Science and Mathematics (NCSSM). Borden Mace, who is sitting here, worked directly with us in the establishment and development of the Illinois Mathematics and Science Academy. I think someone mentioned yesterday that Borden has a hand in every residential school across the nation, and indeed that is true. We were certainly privileged to work with him.

The mission of our institution is to challenge and inspire students of rare talent in math and science; took on two goals within that context. One was to develop an outstanding academic program in math, science and humanities for students with extreme talent, the other was to serve as a laboratory for outreach in curriculum development across the state of Illinois.

I want now to begin to discuss some of the components in a very brief way to show you how the residential school concept begins to address the programmatic variables that Dr. Durden talked about in talent search programs.

Selection

David Perkins mentioned earlier that talent identification should focus on early achieved ability, and ability in a domain. Certainly Durden just described how verbal and mathematical reasoning ability constitutes the focus of the talent search program, they are also the focus of the IMSA and NCSSM as well. We use a system called accomplishment based assessment, where we look at what students have already accomplished within the context of the school environment from

which they come. Illinois is a very diverse state; we have some very affluent areas, and we have some very poor areas. We border on Kentucky, Wisconsin, and the state is industrial and rural. For this reason we look at what students have already accomplished within the context of their home environment, what have they taken advantage of, what leadership opportunities have they utilized, and how have they demonstrated abilities in mathematical and scientific reasoning, communication skills, and general performance. We do use the Scholastic Aptitude Test (SAT), and we are screening approximately the upper one percent of the student population. We receive a student application, and recommendations of the math teacher, science teacher, principal, and guidance counselor. We look for descriptive information which Durden also considered significant in the talent search.

Student Learner Outcomes

We are in the process now of developing very general learning outcomes. We are fortunate because, we are not bound by school codes, and therefore we have what I consider to be remarkable opportunities to develop the criteria by which we will be judged. That doesn't happen very often in education. The broad student learner outcomes are directed by our mission statement. These outcomes are meant to answer for us, "What are the characteristics of the student for which we will be proud?" Maybe that simple, but that's essentially what we're looking for. When a student is engaged in problem solving in a particular enterprise, we want someone to say, "Now where did you come from? You can look at problems in different ways, you are exploring things in a different way, you are using your imagination, your intuition. Where did you come from?" So we began to identify those learning outcomes. We came up with 14. Now we're in the process of saying, "So What?" We have to take those student learning outcomes and find ways to facilitate these outcomes in mathematics, in science, in English, in foreign language, etc. Let me enumerate each one of the 14 outcomes.

1. The ability to formulate questions and seek answers through the observation and interpretation of phenomena.

2. To communicate effectively through the written and spoken word.

3. To solve problems and think critically in all areas of learning by analyzing, synthesizing, and integrating data.

4. To think creatively and innovatively.

5. To demonstrate the use of intuition and imagination in the generation and solution of problems.

6. To demonstrate research and investigative skills.

7. To demonstrate the academic and technical knowledge needed to fulfill civic responsibility, to improve the student's own health and life and to cope with an increasingly technologically complex world.

8. To judge the value and relevance in information in presenting conclusions.

9. To demonstrate a core of base knowledge and skills in all areas of learning.
10. To demonstrate a healthy and positive self-concept.
11. To demonstrate a sense of social awareness and responsibility.
12. To make decisions in a moral and ethical context.
13. To demonstrate the joy and excitement of life-long learning.
14. To demonstrate an appreciation of aesthetics based upon observation and perception.

Curriculum

The above goals may appear simplistic, but believe me, when you're working with the kind of staff that we're accustomed to working with at IMSA it takes a long, long time to reach agreement, especially when you know full well that once you put it down, you're going to have to do it. The curriculum, then, is obviously driven by those learning outcomes. The faculty is now developing the curriculum that will enable students to achieve these outcomes.

We see our students as apprentice investigators and scholars. I think that mind set is critical in the program itself. We're trying to develop an interdisciplinary and integrated program; that's less easy than it sounds. The only reason I think we may have a shot at it is because I do sometimes find English teachers in science teachers in German teacher's classrooms, etc., etc. We're trying to develop this interdisciplinary and integrated program because we believe this is the way knowledge is formulated and discovered by giving kids opportunities to be challenged. College Advanced Placement and becoming sophomores and juniors in college at an early age is really not our goal. We are working with enrichment combined with acceleration. You shouldn't have one without the other. We are also very lab oriented, and experiential. We are also in the process of developing a "tinker's room" just for kids to come in and "play," with electronic equipment, etc. We do think that's important.

Talent, of course, needs information--you do not create in a vacuum. In terms of curriculum development, our goals are very rigorous. We are working with the development of mentorship opportunities, graded and non-graded courses, Friday seminars, Saturday seminars, and lots of opportunities for the kids. In addition to these, there are many extra-curricular activities. Dr. Blanke talked yesterday about leisure, and I left thinking, "Who has time for leisure?" But these kids do need to take time for leisure and exercise. As part of their leisure-time activities, we bus them to museums and art exhibitions in Chicago, restaurants, and to shopping malls--which young adolescents seem to really enjoy--and of course, they're involved in all sorts of other social activities.

Faculty Selection

Faculty selection is a particularly interesting process. I wish Dr. Durden had an opportunity to talk a little bit about that, because it is an integral part of the program really, the people who interact with these kids. When I evaluate someone in an interview--and I interview everybody in the institution--I'm looking for four things. One is extreme knowledge in the field. Another is pedagogical skill; just because someone has a Ph.D., doesn't mean she knows how to teach adolescents. The third is a nurturing and caring personality, and the fourth is the ability to be a team player. Our faculty really has worked with me, and they play a significant role in selecting their own team. This year we're adding an audition component which we didn't have; we'll actually observe someone teach. We think that's really important.

University Collaboration

University collaboration is another component of which Dr. Durden spoke, in terms of the talent search program. We developed what we call the University Affiliates of IMSA. I've worked with college presidents from all the universities in our state. We meet on our campus several times a year, and are beginning to develop collaborative programs. Young scholars is another program Dr. Durden spoke of as part of the talent search program. We are beginning to develop such a component. We have a system in Illinois which establishes regional education centers. There are 18 regional centers which were established by the State Board of Education, and we have used those regional centers for the identification of talent and have invited top-scoring math students from each of those centers as 6th graders to the Academy. Last year we had 18, this year we'll have 64. When you bring 6th graders to a school like ours to live with our kids, and have specialized classes they become hooked; so it acts as a potential recruiting mechanism for the Academy as well.

Minority Recruitment

Minority recruitment is a critical area and Dr. Durden spent quite a lot of time on that, it is also an area of concern to IMSA because we're in a large metropolitan area. I underscore the things Dr. Durden said in terms of the talent search. There are talented minority kids out there who already meet the criteria and that's the first kind of minority student with whom we are working right now. We have not yet developed a skills reinforcement program, but we'll be starting that in the summer, and next year. We have established an advisory council to work with us in that regard.

Parent Outreach

Parent outreach is another significant component of IMSA. We have helped our parents by developing a handbook on how to cope with life when their child is away. It had to deal with some of the problems that they face since the family dramatically changes when a significant person has been removed.

Home Schools

We are also working with the students' regular schools and because we feel the need to celebrate and to recognize achievement across our state, we've established our first statewide teacher recognition program. Each of our students recommended the teacher who had the most significant impact on his/her life prior to coming to the Academy. Two hundred fifty teachers were recommended by our students. They will be coming to the Academy to receive recognition. We've also acknowledged the school districts from which our kids come by sending certificates to the school board and to the Superintendent, and I've been invited to actually present the certificate to the school board. When you work in a residential setting you are often perceived as removing talent from the local area, it is necessary to develop programs that will be proactive in acknowledging the expertise within other districts.

That was very fast overview, probably too fast to give you some sense of how the components that Dr. Durden talked about in the talent search program can be used to develop other programs for the academically talented. If you look at the variables of the talent search program, you have a tremendous framework for developing and assessing programs for talented youth. I think the talent search model is an enormously useful one for comprehensive programming. Once we capitalize on the flexibility inherent in the program and the flexibility possible in our educational system, we can do marvelous things if we're willing to take the risk, and if we're willing to use our imagination and skills to develop the potential of students.

Discussant Reaction:
The Development of Educational Support Systems for the Academically Talented: The Talent Search Approach

John J. Conger

I don't have a program of my own to present here. Instead, I am an interested observer, as you can tell by my excited involvement with the TIP program at Duke for six years. I would like to say a couple of things, looking at the obverse side of the coin of giftedness, where the glass is half empty rather than half-full. The moon has a dark as well as a bright side, and we have heard about a lot of the brightest and most exciting side here today.

As Dr. Marshall noted, Dr. Durden presented a comprehensive and exciting view of the ways in which the talent search concept has evolved at Johns Hopkins and at Duke. I think that most obviously he made it clear that we can find students who are talented who may not have been identified previously, which is not the same thing as saying we can't identify talented adolescents. We can identify adolescents who are talented, but there still are questions about how many adolescents that are talented are not identified. But having been identified, the student has the opportunity to participate in the talent search program which can foster the intellectual aspirations of young people, enabling them to advance educationally in accordance with their individual talents.

I won't review again the impressive array of programs that were discussed in more detail in Dr. Durden's paper. As an observer, I have to cite personal experience in watching the TIP summer program, and I'm sure it would be the same thing for the CTY program. I've taught everything from children to midshipmen to medical students, and I don't see how you could maintain this intensity for five or six hours a day, but they do. There's a constant interaction and, naturally, the excitement grows. As has also been pointed out, one of the great advantages which these programs provide, other than concentrated intellectual experience and the opportunity to talk about with other people about things that you're both excited about, is the chance to socialize with and get to know as friends other talented students and teachers.

I remember the first time I visited the TIP summer program. I had the chance to go into a course in which I was actually dumfounded--humanities, I think it was. The class had just finished studying different kinds of architecture and now were shifting to music. "Now, what kind of architecture does this kind of a symphony remind you of?" There was silence for thirty seconds and every hand in the room shot up. Nobody was afraid to be wrong. Everyone had a wonderful idea.

Afterward, I had lunch with three boys and three girls in the program. Their average age was about fourteen years. I asked if they liked the program. "Oh, it's really great." "Well, what's the single best thing about this program?" They said that was really hard. A boy from a town of five hundred from Texas informed me that if you read science fiction you were viewed as weird. As a matter of fact, if you read, they viewed you as weird. So he spoke up and said, "I guess if you had to just pick out one thing, it's the fact that back home we're one of them, and here we're one of us."

At this point in the conversation, a young girl said, "Do you suppose when we graduate and get through college we could get together and form a little community and all of us can go along together through life." I said I know what you're feeling, but remember two things: 1) It's wonderful to know and have experiences with people like yourselves and not worry about being intellectually precocious and enthusiastic about learning; and 2) You may want to know a lot of other different kinds of people. I can promise you from having been there that the adult world is a little more diverse than the adolescent world. One kid said, "Yeah, I guess maybe you're right. Besides, it isn't going to make any difference because the whole world is going to blow up pretty soon." This other kid, a fourteen year old, said, "I know what you mean, but you don't mean literally because it's physically impossible to actually completely blow up the world so that there is nothing there." Another kid said, "I know what you're arguing but I've been thinking about it lately and actually it is," and he started drawing diagrams all over the table.

I was sitting there totally awed. The opportunity to have that kind of interaction and the lack of self-consciousness is really terrific. I think these programs and the others which were referred to which are less intense, in some ways, are very valuable resources to a post-industrial society. At the same time, I worry about what are we leaving out and I think that, as Dr. Durden pointed out, no one program can meet the needs of all academically able or potentially able youths. Both speakers talked about identifying kids who already have demonstrated that they are academically able. Dr. Marshall emphasized the identifying of achieved talent in a particular domain and, certainly, that's a resource that we've got to and foster as much as we can, especially in contemporary society where American has certainly had not been holding up its end. But, I think that at the same time, there isn't any program that can meet the needs of all academically able or potentially able students. The focus of TIP and CTY has been has been primarily on kids who have already demonstrated exceptional ability. We also need some sort of minority outreach program, including that wonderful skills reinforcement program in Pasadena that is designed to help black and Hispanic minority students qualify for the CTY annual talent search.

I think that outreach is a good topic for research. But taking the group as a whole, the students were selected on the basis of scores between the eighty-sixth and ninetieth percentile on the CAT and that's a pretty significant achievement. If you figure the background they came from, the eightieth percentile is not the general population. We absolutely have to reach a much larger group of young people in our country than we are reaching even in these programs which have already expanded horizons enormously.

The average Hispanic kid in this country is disenfranchised. Our responsibility is to make sure our schools really work. If you read that survey of eleven major school systems in major American cities, we have a crisis on our hands. Obviously, many kids do manage to achieve and demonstrate academic potential. There are many others who have academic potential, but never have a chance to surface. So, I think we have a potentially great crisis on our hands. We have to turn the whole American educational system around and take very seriously the fact that it's an obligation of the whole community. Talent plus recognition is critical at the top but it is also a continuum that has to go all the

way down the line. I would be interested in your observations because, obviously, the TIP community has had an impact on the school districts, giving recognition to teachers who were really in the front lines. And that can't help but have a spinoff effect.

At the same time I think there are still too many school systems that are not being reached. I guess what I'm trying to say is we really need to have a terrific sense of urgency, of how we can do a better job of giving not only talent an opportunity to be not wasted but the potential for talent an opportunity to surface at all, because it's important that young people not be intellectually disenfranchised.

I came from a school in Asheville this morning, where, to my consternation and delight, I graduated. Forty-nine years later the Board of Trustees decided to give me their Asheville School Achievement Award. I went over there and talked to their Sunday night assembly of students. I worked harder at that than I did on any presidential speech. I thought it was over when they handed me a plaque. Then, a boy from the senior class came up and said that they had a literary review when I was there in the thirties, and the magazine had died and they were now reviving it. They went through old issues and came across a series of eighteen poems I had published over a period of three years. They had them formally printed and bound in this book, with illustrations and a beautiful cover. They entitled it *Poems Written at the Asheville School, by John Conger, 1939.*

Now, there was something really exciting about that. It wasn't about what kind of grades I got. But it said something about the total commitment. That would be the last thing that I would comment on. And that is that you have got to be careful about how we nurture talents in the specific domains. A student may be even more excited about the talent he or she has in math or science when surrounded by other kids who are equally talented. But, as you said, we want to make sure they don't get locked into a particular curriculum. You also have to be concerned that we make a positive effort to keep these talented students broad in their liberal education and the arts.

Anyway, this is my last anecdote. I went to Amherst College. I decided to be a poet while I was at Asheville because I was taught by two wonderful poets, one of whom, Eliot Cohn, went on to become head of the Creative Writing Program at Johns Hopkins and educated a whole generation of people who didn't want to become psychologists. I liked Amherst College. I found out the first year that I had to take College Algebra. So, I went to see the Dean and I said I would like to get out of this requirement. It wasn't that I felt that it would just be irrelevant, which it clearly was. I thought it was positively self-destructive for a poet to have to take College Algebra. The Dean remarked, "Well, Mr. Conger, I have noticed over the years that a lot of poets fall into two categories. There are poets who know something about mathematics, and poets who don't know anything about mathematics. I have a strong preference for the first group. So, you will take College Algebra."

I was very impressed with Dr. Marshall's and Dr. Durden's presentations. I wish you great luck in your endeavors. I guess what I'm saying is that what you're doing, you're doing very well. But, make sure you look at the whole picture, the dark side of the moon, too.